

PREMIUM CLOSED LOOP ROCKWELL TYPE HARDNESS TESTER EW-6000 SERIES™

High accuracy and repeatability through closed loop and load cell combined system, 4 models available

- Measures at choice Standard, Superficial or combined Rockwell hardness values
- Superior GR & R results!
- Simultaneous conversion to HV, HB and other HR scales
- Rugged fine casted frame allowing large dimension work pieces
- ASTM, ISO, JIS and other global standards compliant
- Unique closed loop and load cell combined system, guaranteeing that pre- and main load are applied with absolute accuracy, no variety between testers and independence of the operator skills
- Superior depth measuring system through high precision Heidenhain (Germany) glass scale
- No elevating screw, simplifies test operation and enhances accuracy
- Storage of 50 test programs and tester settings, allowing you to set up your tester in just seconds
- Alpha numerical data entry
- Continuous automatic "online" statistics, incl. average of readings etc.
- Storage of 20,000 single hardness values
- Go / No Go mode
- Convex and concave measuring mode
- Calibration date expired (reminder)
- Service mode including tests counter, maintenance system
- Prints statistics to built-in printer or external printer
- Connects with PC or SPC network via built-in bi-directional RS232C connector

The EW-6000 series model offer standard a fully automatic system with the advantage of a fixed measuring table.

Also available as a MASTER Rockwell configuration for calibration of reference hardness test blocks.

Please ask for availability in your country.



Technical specifications

Rockwell scales	Standard Superficial	A, B, C, D, E, F, G, H, K, L, M, P, R, V 15N, 30N, 45N, 15T, 30T, 45T, 15W, 30W, 45W, 15X, 30X, 45X, 15Y, 30Y, 45Y
Conversion to	HV, HB, other HR scales	
Hardness resolution	0.1 & 0.01 of a Rockwell unit	
Pre-load	3kgf / 10kgf	
Main loads	15, 30, 45, 60, 100, 150kg through controlled closed loop system	
Pre-load application	Fully automatic	
Test load application	Fully automatic	
Data output	Built-in high speed printer & RS 232C	
LCD Display	Hardness value, conversion value, test force indicator, dwell time, memory contents, all machine settings, go / no go, all statistics, and many more	
Specimen accommodation	Vertical space 250mm Horizontal space (from centre of elevator shaft) 220mm	
Power supply	110/240V, 50 – 60Hz	
Machine dimensions	Approx. 940mm x 390mm x 670mm (HxWxD)	
Net weight	Approx. 120kg	

EW-6000 R™	Load cell / Closed loop Standard Rockwell
EW-6000 SR™	Load cell / Closed loop Superficial Rockwell
EW-6000 TR™	Load cell / Closed loop Standard & Superficial Rockwell
EW-6000 ESEMASTER™	Load cell / Closed loop Standard & Superficial Rockwell MASTER Rockwell

Standard delivery

- Main unit
- Built-in printer
- Data output RS-232C
- Diamond Rockwell indenter
- Rockwell ball indenter 1/16"
- Rockwell testing balls
- Flat testing anvil ø 60mm
- Flat anvil ø 150mm
- V-anvil 40mm
- Hardness test blocks:
±60 HRC, ±40 HRC, ±85 HRB
- Power cable
- Spare fuse
- Adjustable feet (4 Pcs)
- Spindle protection cover
- Machine cover
- Solid accessories case
- ESEWAY® certificate
- User and installation manual

Optional accessories

- Clamping and indenter protection nose
- UKAS, DKD, ASTM/NIST Certified test blocks
- UKAS, DKD, ASTM/NIST Indentors & balls
- Pedestal spot anvil
- Heavy load testing tables
- Special support systems for large work pieces
- Tester stand with cabinet

MODULAR ROCKWELL SYSTEM CV-6500™

Especially designed for "On-Line" testing of large quantities during components production

- High quality hardness testing module especially designed to test large quantities of components during production
- The test head can easily be integrated in the production process due to its new design and slim build
- The system consists of a test head and a separate read out unit that can be installed in a switchboard cabinet
- Available in Rockwell-HRC, Brinell (up to 187.5kg) and Vickers. For the Brinell and Vickers versions a modified test procedure is applied measuring the indentation depth as the optical measuring method is not suitable for quick, automatic testing
- High accuracy plus quick testing guaranteed as the test load is checked and adapted during the entire load cycle
- The test cycle of 30 seconds starts automatically when the sample is ready positioned. Once the test cycle is finished, the system indicates that the sample can be withdrawn
- The test result is valued according to the indicated parameters
- The hardness value can be transferred through RS-232 or TCP/LAN



Technical specifications

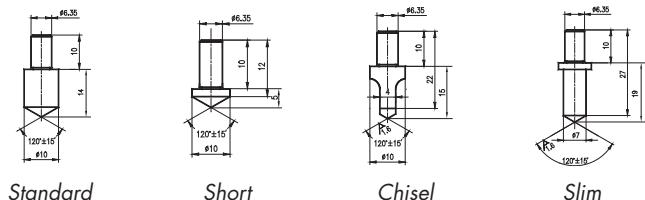
Hardness parameter	Rockwell C, other scales available on request
Test load (Rockwell)	10kp Preload, 150kp total load
Hardness Resolution	0.1 HRC unit
Stroke	15mm
Test cycle duration	Approx. 30 Seconds
Power supply	85 - 264V / AC
Dimensions	88mm x 88mm x 750mm + connection box on the side
Mounting options	Tapped holes on the back
Control unit	19"-housing, 3HE
Connection to SPS	Switches
Data output	RS232
Display	Graphic LCD

**Further information available
on request**

ROCKWELL TYPE HARDNESS TESTER CV-630™

Bench hardness tester with protruding nose for internal tests

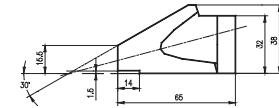
- Horizontally protruding nose type machine
- Tests on difficult to reach areas
- Tests on internal surfaces from 40mm diameter with standard indentor and 23mm with short indentor
- Tests on external surfaces down to 3mm diameter
- Automatic test cycle
- Clear matrix backlit LCD
- Data output to printer TA-220
- Easy menu selectable screens for display and control
- Four models of diamond indentors available:



Standard Short

Chisel

Slim



Dimensions of protruding nose

Technical specifications

Hardness parameters	A, B, C, D, E, F, G, H, K, L, M, P, R, S, V
Hardness resolution	0.1 of a Rockwell unit
Test loads	10kgf preload / 60, 100, 150kgf total load
Display	Matrix backlit LCD
Language	English
Data entry	Membrane keypad, menu driven
Test cycle	Automatic
Load duration	Programmable dwell and recovery times 2-50sec
Data output	RS232 serial port for printer TA-220/computer
Menu features	Hardness tolerance setting (upper/lower limits) Conversions: Vickers, Brinell, Rockwell superficial, Leeb, UTS Statistical data: X-bar, S, R, max, min Automatic curvature correction for cylindrical and spherical surfaces
Standard	EN-ISO 6508, ASTM E-18
Specimen accommodation	Vertical space 250mm (10") Horizontal space (from centre-line) 150mm (6")
Specimen access	External surfaces Cylindrical surfaces down to 3mm diameter Internal surfaces from 40mm diameter with standard indentor and 23mm with short indentor
Power supply	220V or 110V, 50Hz
Machine dimensions	Width 225mm, depth 715mm, height 790mm
Machine weight	100kg

Standard delivery

- Main unit
- Diamond indentor
- Ball indentor 1/16"
- Spare balls 1/16" (5 pcs)
- Fixing screw for indentors
- Flat anvil 70mm diameter
- V-anvil 30mm diameter
- Hardness test block HRC
- Hardness test block HRB
- Power cable
- Certificate
- Manual

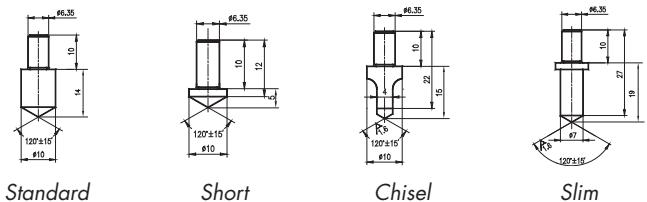
Optional accessories

- Short diamond indentor
- Chisel diamond indentor
- Slim diamond indentor
- Ball indentor 1/8"
- Ball indentor 1/4"
- Ball indentor 1/2"
- Flat anvil 225mm diameter
- Flat anvil 150mm diameter
- V-anvil large
- V-anvil flat
- Support fixtures
- Printer TA-220 with cable
- UKAS certified test blocks

ROCKWELL TYPE HARDNESS TESTER CV-631™

Bench hardness tester with protruding nose for internal tests

- Automatic load selector
- Horizontally protruding nose type machine
- Tests on difficult to reach areas
- Tests on internal surfaces from 40mm diameter with standard indentor and 23mm with short indentor
- Tests on external surfaces down to approx 3mm diameter (hardness dependant)
- Automatic test cycle
- Clear matrix backlit LCD
- Data output to printer TA-220
- Easy menu selectable screens for display and control
- Four models of diamond indentors available:

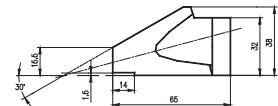


Standard

Short

Chisel

Slim



Dimensions of protruding nose



Technical specifications

Hardness parameters	A, B, C, D, E, F, G, H, K, L, M, P, R, S, V
Hardness resolution	0.1 of a Rockwell unit
Test loads	10kgf preload / 60, 100, 150kgf total load
Display	Matrix backlit LCD
Language	English
Data entry	Membrane keypad, menu driven
Test cycle	Automatic
Load duration	Programmable dwell and recovery times 2-50sec
Data output	USB, RS232 serial port for printer TA-220/computer
Menu features	Upper/lower hardness limits settings and alarm Data statistics: Ave., Max., Min., S.R. Scale conversion: converts tested value to Vickers, Leeb, Brinell, Rockwell superficial, UTS Curve correction: cylinder and sphere Test force switches automatically Automatic data storage within 500 data groups, Hardness & Strength conversion also for aluminum, alloy aluminum copper and alloy copper
Standard	EN-ISO 6508, ASTM E-18
Specimen accommodation	Vertical space 260mm (10.24") Horizontal space (from centre-line) 150mm (6")
Specimen access	External surfaces Cylindrical surfaces down to 3mm diameter Internal surfaces Cylindrical surfaces down to 23mm diameter
Power supply	220V or 110V, 50Hz
Machine dimensions	Width 225mm, depth 715mm, height 790mm
Machine weight	100kg

Standard delivery

- Main unit
- 120° Cone diamond indentor
- Ball indentor 1/16"
- Spare balls 1/16" (5 pcs)
- Fixing screw for indentors
- Flat anvil 70mm diameter
- V-anvil 30mm diameter
- Test block HRA
- Test block HRB
- Test block HRC (3 pcs)
- Power cable
- Certificate
- Manual

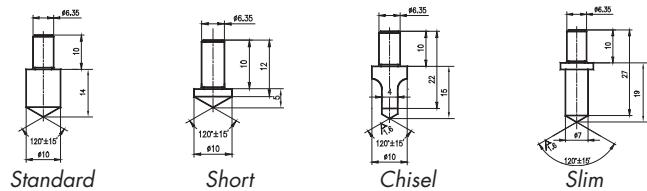
Optional accessories

- Short diamond indentor
- Chisel diamond indentor
- Slim diamond indentor
- Ball indentor 1/8"
- Ball indentor 1/4"
- Ball indentor 1/2"
- Flat anvil 225mm diameter
- Flat anvil 150mm diameter
- V-anvil large
- V-anvil flat
- Support fixtures
- Printer TA-220 with cable
- UKAS certified test blocks

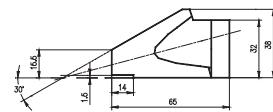
ROCKWELL TWIN TYPE HARDNESS TESTER CV-632™

Bench hardness tester with protruding nose for internal tests, regular and superficial scales

- Horizontally protruding nose type machine
- Tests on difficult to reach areas
- Tests on internal surfaces from 40mm diameter with standard indentor and 23mm with short indentor
- Tests on external surfaces down to approx 3mm diameter (hardness dependant)
- Automatic test cycle
- Clear matrix backlit LCD
- Data output to printer TA-220
- Easy menu selectable screens for display and control
- Four models of diamond indentors available:



Rockwell &
Rockwell
Superficial load
selector



Dimensions of protruding nose

Technical specifications

Hardness parameters	Rockwell A, B, C, D, E, F, G, H, K, L, M, P, R, S, V Rockwell Superficial N, T, W, X, Y
Hardness resolution	0.1 of a Rockwell unit
Test loads	10kgf preload / 60, 100, 150kgf total load 3kgf preload / 15, 30, 45kgf total load
Display	Matrix backlit LCD
Language	English
Data entry	Membrane keypad, menu driven
Test cycle	Automatic
Load duration	Programmable dwell and recovery times 2-50sec
Data output	RS232 serial port for printer TA-220/computer
Menu features	Hardness tolerance setting (upper/lower limits) Conversions: Vickers, Brinell, Rockwell superficial, Knoop, Leeb, UTS Statistical data : X-bar, S, R, max, min Automatic curvature correction for cylindrical and spherical surfaces
Standard	EN-ISO 6508, ASTM E-18
Specimen accommodation	Vertical space 250mm (10") Horizontal space (from centre-line) 150mm (6")
Specimen access	External surfaces Cylindrical surfaces down to 3mm diameter Internal surfaces from 40mm diameter with standard indentor and 23mm with short indentor
Power supply	220V or 110V, 50Hz
Machine dimensions	Width 240mm, depth 720mm, height 815mm
Machine weight	120kg

Standard delivery

- Main unit
- Diamond indentor
- Ball indentor 1/16"
- Spare balls 1/16" (5 pcs)
- Fixing screw for indentors
- Flat anvil 70mm diameter
- V-anvil 30mm diameter
- Hardness test block HRA
- Hardness test block HRB
- Hardness test block HRC
- Hardness test block HR15N
- Hardness test block HR30N (2 pcs)
- Hardness test block HR30T
- Power cable
- Certificate and manual

Optional accessories

- Short diamond indentor
- Chisel diamond indentor
- Slim diamond indentor
- Ball indentor 1/8"
- Ball indentor 1/4"
- Ball indentor 1/2"
- Flat anvil 225mm diameter
- Flat anvil 150mm diameter
- V-anvil large
- V-anvil flat
- Support fixtures
- Printer TA-220 with cable
- UKAS certified test blocks

ROCKWELL® HARDNESS SCALES™

Scales, loads, indentors and applications

Regular Rockwell scales

Preliminary test force: 98.07N (10kgf)

Scale	Indentor	Test force		Applications
A	Diamond	588,4N	(60kgf)	Case hardened steel, cemented carbide, thin steel sheet, copper
D	Diamond	980,7N	(100kgf)	Case hardened steel, cemented carbide, thin steel sheet, copper
C	Diamond	1471N	(150kgf)	Case hardened steel, cemented carbide, thin steel sheet, copper
F	Steel ball diameter 1/16"	588,4N	(60kgf)	Annealed steel, bearing metal, hard-drawn aluminium alloys, brass, beryllium copper, phosphor bronze
B	Steel ball diameter 1/16"	980,7N	(100kgf)	Annealed steel, bearing metal, hard-drawn aluminium alloys, brass, beryllium copper, phosphor bronze
G	Steel ball diameter 1/16"	1471N	(150kgf)	Annealed steel, bearing metal, hard-drawn aluminium alloys, brass, beryllium copper, phosphor bronze
H	Steel ball diameter 1/8"	588,4N	(60kgf)	Bearing metal, grinding stone
E	Steel ball diameter 1/8"	980,7N	(100kgf)	Bearing metal, grinding stone
K	Steel ball diameter 1/8"	1471N	(150kgf)	Bearing metal, grinding stone
P	Steel ball diameter 1/4"	588,4N	(60kgf)	Extra mild metal (e.g. aluminum, zinc, lead)
M	Steel ball diameter 1/4"	980,7N	(100kgf)	Extra mild metal (e.g. aluminum, zinc, lead)
L	Steel ball diameter 1/4"	1471N	(150kgf)	Extra mild metal (e.g. aluminum, zinc, lead)
R	Steel ball diameter 1/2"	588,4N	(60kgf)	Tin, plastics, cardboard
S	Steel ball diameter 1/2"	980,7N	(100kgf)	Tin, plastics, cardboard
V	Steel ball diameter 1/2"	1471N	(150kgf)	Tin, plastics, cardboard

Superficial Rockwell scales

Preliminary test force: 29.4N (3kgf)

Scale	Indentor	Test force		Applications
HR15N	Diamond 120°	147 N	(15kgf)	Nitrided steel, thin steel plate, tubes and pipes, knife blades, small parts
HR30N	Diamond 120°	294 N	(30kgf)	Nitrided steel, thin steel plate, tubes and pipes, knife blades, small parts
HR45N	Diamond 120°	441N	(45kgf)	Nitrided steel, thin steel plate, tubes and pipes, knife blades, small parts
HR15T	Steel ball diameter 1/16"	147 N	(15kgf)	Soft steel, brass, bronze, tubes and pipes, aluminium alloy
HR30T	Steel ball diameter 1/16"	294 N	(30kgf)	Soft steel, brass, bronze, tubes and pipes, aluminium alloy
HR45T	Steel ball diameter 1/16"	441N	(45kgf)	Soft steel, brass, bronze, tubes and pipes, aluminium alloy
HR15W	Steel ball diameter 1/8"	147 N	(15kgf)	Soft steel, bismuth bronze
HR30W	Steel ball diameter 1/8"	294 N	(30kgf)	Soft steel, bismuth bronze
HR45W	Steel ball diameter 1/8"	441N	(45kgf)	Soft steel, bismuth bronze
HR15X	Steel ball diameter 1/4"	147 N	(15kgf)	Soft metal, plastics, etc.
HR30X	Steel ball diameter 1/4"	294 N	(30kgf)	Soft metal, plastics, etc.
HR45X	Steel ball diameter 1/4"	441N	(45kgf)	Soft metal, plastics, etc.
HR15Y	Steel ball diameter 1/2"	147 N	(15kgf)	Soft metal, plastics, etc.
HR30Y	Steel ball diameter 1/2"	294 N	(30kgf)	Soft metal, plastics, etc.
HR45Y	Steel ball diameter 1/2"	441N	(45kgf)	Soft metal, plastics, etc.

MICRO-VICKERS HARDNESS TESTER CV-400AAT™

Motorized turret with analogue measurement microscope and easy-to-use integrated hardness calculator

- Motorized turret
- High quality microscope with analogue scale
- Fully automatic load control
- Easy-to-use operating system
- Two optical paths
- Built-in high speed thermal printer
- XY stage with minimum reading of 0.01mm
- CV-CCD Video measurement system optional
- Dual indentor (Vickers/Knoop) turret optional
- 2kg load optional

Typical applications

- Steels, nonferrous metals, IC wafers, small precision components
- Thin plastic, metallic foils, plating, coating, surface layers, laminated metals
- Effect of heat treatment, case depth analysis, depth of carburised and flame hardened layers



Technical specifications

Vickers scales	HV0.01, HV0.025, HV0.05, HV0.1, HV0.2, HV0.3, HV0.5, HV1 (HV2)
Display	Shows: hardness readings through calculator input, general settings, diagonals, dwell time, RS-232 connections, illumination settings
Test load	10 - 25 - 50 - 100 - 200 - 300 - 500 - 1000gf (2000gf optional)
Accuracy	Conforms to EN-ISO 6507 and ASTM E384
Load control	Automatic (loading/dwell/unloading)
Load duration	5 to 60 sec (5 sec increments)
Test force selection	By dial knob; applied load shows on display
Microscope	
Objectives	10x, 40x
Eyepiece magnification	15x / mechanical thumbwheel
Total magnification	150x (observation), 600x (measurement)
Measuring range	200µm
Resolution	0.03µm
XY stage	
Dimensions	100mm x 100mm
Travel range	25mm x 25mm
Resolution	0.01mm (micrometers)
Specimen	
Maximum height	85mm (2.55")
Maximum depth	90mm (3.35") (from the centre)
Optical path	2-way switchable
Power supply	110-220V, 50Hz
Dimensions	470mm x 210mm x 420mm
Weight	36kg

Standard delivery

- Main unit
- Motorized turret
- Diamond indentor Vickers
- Objectives 10x, 40x
- Eyepiece 15x
- XY-stage with micrometers
- Adjustable feet (3pcs)
- Clamping devices (3pcs)
- Extension tube for CCD-camera
- Analogue eyepiece incl. protection cover
- Spirit level
- Micro-Vickers test plates (2pcs)
- Spare light bulb 12V-30W
- Spare fuses (2pcs)
- Installation and user manual
- CV Instruments certificate

Optional accessories

- 2kg test load / scales
- Knoop indentor
- Precision vice
- Video filar system
- Certified indentors and test blocks

Optional system

- CV-CCD system for (semi-) and automatic traverses, pattern testing through pc support and motorised XY stage

MICRO-VICKERS HARDNESS TESTER CV-400DAT™

Motorized turret with digital measurement microscope, menu operated user interface

- Motorized turret
- High quality digital microscope for efficient operation
- Fully automatic load control
- Easy operating system
- Two optical paths
- Built-in high speed thermal printer
- XY stage with minimum reading of 0.01mm
- CV-CCD Video measurement system optional
- Dual indentor (Vickers/Knoop) turret optional
- 2kg load optional

Typical applications

- Steels, nonferrous metals, IC wafers, small precision components
- Thin plastic, metallic foils, plating, coating, surface layers, laminated metals
- Effect of heat treatment, case depth analysis, depth of carburised and flame hardened layers



Technical specifications

Vickers scales	HV0.01, HV0.025, HV0.05, HV0.1, HV0.2, HV0.3, HV0.5, HV1 (HV2)
Display	Dwell time (sec), hardness value, menu operated user interface, shows: hardness readings, general settings, diagonals, dwell time, RS-232 connections, illumination settings
Test load	10 - 25 - 50 - 100 - 200 - 300 - 500 - 1000gf (2000gf optional)
Accuracy	Conforms to EN-ISO 6507 and ASTM E384
Load control	Automatic (loading/dwell/unloading)
Load duration	5 to 60 sec (5 sec increments)
Test force selection	By dial knob; applied load shows on display
Microscope	
Objectives	10x, 40x
Eyepiece magnification	15x / mechanical thumbwheel, digital encoder built-in
Total magnification	150x (observation), 600x (measurement)
Measuring range	200µm
Resolution	0.03µm
XY stage	
Dimensions	100mm x 100mm
Travel range	25mm x 25mm
Resolution	0.01mm (micrometers)
Specimen	
Maximum height	85mm (2.55")
Maximum depth	90mm (3.35") (from the centre)
Optical path	2-way switchable
Power supply	110-220V, 50Hz
Dimensions	470mm x 210mm x 420mm
Weight	36kg

Standard delivery

- Main unit
- Motorized turret
- Diamond indentor Vickers
- Objectives 10x, 40x
- Digital eyepiece 15x
- XY-stage with micrometers
- Adjustable feet (3pcs)
- Clamping devices (3pcs)
- Extension tube for CCD-camera
- Digital eyepiece incl. protection cover
- Spirit level
- Micro-Vickers test plates (2pcs)
- Spare light bulb 12V-30W
- Spare fuses (2pcs)
- Installation and user manual
- CV Instruments certificate

Optional accessories

- 2kg test load / scales
- Knoop indentor
- Precision vice
- Video filar system
- Certified indentors and test blocks

Optional system

- CV-CCD system for (semi-) and automatic traverses, pattern testing through pc support and motorised XY stage

MICRO-VICKERS HARDNESS TESTER CV-400DTS™

Motorized turret with digital measuring microscope, touch screen user interface

- Motorized turret
- High quality digital microscope for efficient operation
- Fully automatic load control
- Easy to use operating system
- Case depth measurement with graphical display
- Two optical paths
- Built-in high speed thermal printer
- XY stage with minimum reading of 0.01mm
- CV-CCD Video measurement system optional
- Dual indentor (Vickers/Knoop) turret optional
- 2kg load optional

Typical applications

- Steels, nonferrous metals, IC wafers, small precision components
- Thin plastic, metallic foils, plating, coating, surface layers, laminated metals
- Effect of heat treatment, case depth analysis, depth of carburised and flame hardened layers



Technical specifications

Vickers scales	HV0.01, HV0.025, HV0.05, HV0.1, HV0.2, HV0.3, HV0.5, HV1 (HV2)
Display	Dwell time (sec), hardness value, menu operated user interface, shows: hardness readings, general settings, diagonals, dwell time, case depth analysis, RS-232 connections, illumination settings
Test load	10 - 25 - 50 - 100 - 200 - 300 - 500 - 1000gf (2000gf optional)
Accuracy	Conforms to EN-ISO 6507 and ASTM E384
Load control	Automatic (loading/dwell/unloading)
Load duration	5 to 60 sec (5 sec increments)
Test force selection	By dial knob; applied load shows on display
Microscope	
Objectives	10x, 40x
Eyepiece magnification	15x / mechanical thumbwheel, digital encoder built-in
Total magnification	150x (observation), 600x (measurement)
Measuring range	200µm
Resolution	0.03µm
XY stage	
Dimensions	100mm x 100mm
Travel range	25mm x 25mm
Resolution	0.01mm (micrometers)
Specimen	
Maximum height	85mm (2.55")
Maximum depth	90mm (3.35") (from the centre)
Optical path	2-way switchable
Power supply	110-220V, 50Hz
Dimensions	470mm x 210mm x 420mm
Weight	36kg

Standard delivery

- Main unit
- Motorized turret
- Diamond indentor Vickers
- Objectives 10x, 40x
- Eyepiece 15x
- XY-stage with micrometers
- Adjustable feet (3pcs)
- Clamping devices (3pcs)
- Extension tube for CCD-camera
- Digital eyepiece incl. protection cover
- Spirit level
- Micro-Vickers test plates (2pcs)
- Spare light bulb 12V-30W
- Spare fuses (2pcs)
- Installation and user manual
- CV Instruments certificate

Optional accessories

- 2kg test load / scales
- Knoop indentor
- Precision vice
- Certified indentors and test blocks

Optional system

- CV-CCD system for (semi-) and automatic traverses, pattern testing through pc support and motorised XY stage

MICRO-VICKERS HARDNESS SYSTEM CV-400DM™

Motorized turret, digital measuring microscope with external ccd monitor system

- "Easy measure" monitor system
- Motorized turret
- High quality digital microscope
- Fully automatic load control
- Easy to use operating system
- Two optical paths
- Built-in high speed thermal printer
- XY stage with minimum reading of 0.01mm
- Dual indentor (Vickers/Knoop) turret optional
- 2kg load optional

Typical applications

- Steels, nonferrous metals, IC wafers, small precision components
- Thin plastic, metallic foils, plating, coating, surface layers, laminated metals
- Effect of heat treatment, case depth analysis, depth of carburised and flame hardened layers



Technical specifications

Vickers scales	HV0.01, HV0.025, HV0.05, HV0.1, HV0.2, HV0.3, HV0.5, HV1 (HV2)
Display	Dwell time (sec), hardness value, menu operated user interface, shows: hardness readings, general settings, diagonals, RS-232 connections, illumination settings. CCD camera on eyepiece projects indentation on standard accessory CRT screen, allowing easy to read and more accurate measurement
Test load	10 - 25 - 50 - 100 - 200 - 300 - 500 - 1000gf (2000gf optional)
Accuracy	Conforms to EN-ISO 6507 and ASTM E384
Load control	Automatic (loading/dwell/unloading)
Load duration	5 to 60 sec (5 sec increments)
Test force selection	By dial knob; applied load shows on display
Microscope	
Objectives	10x, 40x
Eyepiece magnification	15x / mechanical thumbwheel, digital encoder built-in
Total magnification	150x (observation), 600x (measurement)
Measuring range	200µm
Resolution	0.03µm
XY stage	
Dimensions	100mm x 100mm
Travel range	25mm x 25mm
Resolution	0.01mm (micrometers)
Specimen	
Maximum height	85mm (2.55")
Maximum depth	90mm (3.35") (from the centre)
Optical path	2-way switchable
Power supply	110-220V, 50Hz
Dimensions	470mm x 210mm x 420mm
Weight	36kg

Standard delivery

- Main unit with CCD Camera and monitor
- Motorized turret
- Diamond indentor Vickers
- Objectives 10x, 40x
- Eyepiece 15x
- XY-stage with micrometers
- Adjustable feet (3pcs)
- Clamping devices (3pcs)
- Extension tube for CCD-camera
- Digital eyepiece incl. protection cover
- Spirit level
- Micro-Vickers test plates (2pcs)
- Spare light bulb 12V-30W
- Spare fuses (2pcs)
- Installation and user manual
- CV Instruments certificate

Optional accessories

- 2kg test load / scales
- Knoop indentor
- Precision vice
- Certified indentors and test blocks

Optional system

- CV-CCD system for (semi-) and automatic traverses, pattern testing through pc support and motorised XY stage

VICKERS/MICRO-VICKERS VIDEO FILAR SYSTEM CV-CCD™

Fast and easy determination of Vickers/Micro-Vickers hardness on PC, featuring hardness depth graphics



Motorized stage



CV-CCD system

Unique, user friendly system combines the power, speed and flexibility of a personal computer with the precision of our Vickers/Micro-Vickers hardness testers series, to accommodate a full spectrum of micro hardness testing requirements.

Simple test procedure, user defines simple or complex pattern for automatic positioning and indentation. The software automatically measures and records indentation size and hardness measurement. Results display includes depth versus hardness XY plotting as well as statistics and individual indent results.

Ideal for industrial, production, and research applications. Measurements are made through the high-resolution video camera system. Productivity is dramatically increased due to the elimination of time consuming, stage and eyepiece manual intervention, typically associated with high quantity pattern testing.

Standard delivery

- Different configurations available depending on specific requirements
Please contact our sales department for advice.

VICKERS/MICRO-VICKERS VIDEO FILAR SYSTEM CV-CCD™

Fast and easy determination of Vickers/Micro-Vickers hardness on PC, featuring hardness depth graphics

CV-CCD1, Video filar system 1 Basic system for individual tests with PC

Standard delivery

- Software level 1
- Frame grabber card
- Micrometer
- CCD-camera 1/2" pal, C-mount
- Cable-camera with frame grabber, UIB
- Camera adapter direct
- Camera power supply 12V
- Applicable on our models:
CV-400AAT, CV-400DAT, CV-400DTS, CV405AAT, CV410AAT,
CV430AAT, CV450AAT, CV405DAT, CV410DAT, CV430DAT, CV450DAT

Option:

Automatic positioning and indentation

Languages available:

English, French, German, Spanish, Italian, Swedish, Portugese, Polish, Czech, Hungarian

Excluding:

PC, monitor, keyboard, mouse and hardness tester
Minimum PC configuration:
Pentium IV, 2GHz, 256MB, 2PSI-slot, 2 USB, 2 RS-232, Grafic card (ATI-Radeon or Intel 745), CD-rom, Hard disk

CV-CCD3, Video filar system 3 Semi-automatic configuration with PC

Standard delivery

- Software level 2
- X-Y table 100mm x 100mm or 160mm x 100mm
- FM stepper box 2-AXIS
- Frame grabber card
- CCD-camera 1/2" pal, C-mount
- Cable-camera with frame grabber, UIB
- Table adapter
- Camera adapter direct
- Camera power supply 12V
- Cable PC SER-hardness tester
- Cable PC SER-FM stepper box
- Applicable on our models:
CV-400AAT, CV-400DAT, CV-400DTS, CV405AAT, CV410AAT,
CV430AAT, CV450AAT, CV405DAT, CV410DAT, CV430DAT, CV450DAT

Option:

Automatic positioning and indentation

Languages available:

English, French, German, Spanish, Italian, Swedish, Portugese, Polish, Czech, Hungarian

Excluding:

PC, monitor, keyboard, mouse and hardness tester
Minimum PC configuration:
Pentium IV, 2GHz, 256MB, 2PSI-slot, 2 USB, 2 RS-232, Grafic card (ATI-Radeon or Intel 745), CD-rom, Hard disk

CV-CCD2, Video filar system 2 Basic system for testing traverses with PC

Standard delivery

- Software level 1
- Frame grabber card
- CCD-camera 1/2" pal, C-mount
- Digital micrometer (1)
- Cable-camera with frame grabber, UIB
- Camera adapter hardness tester
- Camera power supply 12V
- Micrometer clamp
- Cable PC SER-hardness tester
- Applicable on our models:
CV-400AAT, CV-400DAT, CV-400DTS, CV405AAT, CV410AAT,
CV430AAT, CV450AAT, CV405DAT, CV410DAT, CV430DAT, CV450DAT

Option:

Automatic positioning and indentation

Languages available:

English, French, German, Spanish, Italian, Swedish, Portugese, Polish, Czech, Hungarian

Excluding:

PC, monitor, keyboard, mouse and hardness tester
Minimum PC configuration:
Pentium IV, 2GHz, 256MB, 2PSI-slot, 2 USB, 2 RS-232, Grafic card (ATI-Radeon or Intel 745), CD-rom, Hard disk

CV-CCD4, Video filar system 4 Full-automatic system for testing complex patterns and traverses with PC

Standard delivery

- Software fully automatic
- X-Y table 100mm x 100mm or 160mm x 100mm
- FM stepper 3-AXIS
- Z-axis installation kit
- Frame grabber card
- CCD-camera 1/2" pal, C-mount
- Cable-camera with frame grabber, UIB
- Table adapter
- Camera adapter hardness tester
- Camera power supply 12V
- Cable PC SER-hardness tester
- Cable PC SER-FM stepper box
- Applicable on our models:
CV-400AAT, CV-400DAT, CV-400DTS, CV405AAT, CV410AAT,
CV430AAT, CV450AAT, CV405DAT, CV410DAT, CV430DAT, CV450DAT

Languages available:

English, French, German, Spanish, Italian, Swedish, Portugese, Polish, Czech, Hungarian

Excluding:

PC, monitor, keyboard, mouse and hardness tester
Minimum PC configuration:
Pentium IV, 2GHz, 256MB, 2PSI-slot, 2 USB, 2 RS-232, Grafic card (ATI-Radeon or Intel 745), CD-rom, Hard disk

VICKERS HARDNESS TESTER CV-405/410/430/450AAT™

With analogue measurement micrometer reading and easy-to-use integrated hardness calculator

- High precision, high accuracy Vickers hardness tester
- High quality microscope with analogue scale
- Standard conforms to EN-ISO 6507
- Integrated hardness calculator
- Robust and reliable
- Four models with different weight ranges available
- Two way optical path
- Superior Optical system and illumination
- CV-CCD Video measurement system optional

Typical applications

- Cemented carbide, ceramics, steels, nonferrous metals
- Thin plates, metallic foils, plating, miniature objects
- Material strength, effect of heat treatment, depth of carburized or decarburized layer and flame hardened layer, effect of hardening, hardness resulting from welding or deposition
- Routine testing of precision components
- Research and development



Technical specifications

Vickers scales	CV-405AAT: HV0.3, HV0.5, HV1, HV2, HV3, HV5 CV-410AAT: HV0.5, HV1, HV2, HV3, HV5, HV10 CV-430AAT: HV1, HV2.5, HV5, HV10, HV20, HV30 CV-450AAT: HV1, HV5, HV10, HV20, HV30, HV50
Test force selection	By dial knob; applied load shown on display
Accuracy	Conforms to EN-ISO 6507
Test load	CV-405AAT: 0.3, 0.5, 1, 2, 3, 5 CV-410AAT: 0.5, 1, 2, 3, 5, 10 CV-430AAT: 1, 2.5, 5, 10, 20, 30 CV-450AAT: 1, 5, 10, 20, 30, 50
Load control	Automatic (loading/dwell/unloading)
Load duration	5 to 60 sec (5 sec increments)
Objectives	10x, 20x (CV-405/410AAT), 5x, 10x (CV-430/450AAT)
Eyepiece magnification	15x
Total magnification	150x, 300x (CV-405/410AAT), 75x, 150x (CV-430/450AAT)
Measuring range	HV5 - HV3000
Maximum specimen height	160mm
Maximum specimen depth	135mm from the centre
Optical path	2-way switchable: eyepiece/camera
Display	Dwell time (sec), hardness value (from entering diagonal lengths via digital calculator)
Power supply	220V, 50Hz
Dimensions	220mm x 540mm x 650mm
Weight	38kg

Standard delivery

- Main unit
- Diamond indenter Vickers
- Objectives 10x, 20x or 5x, 10x
- Digital eyepiece 15x
- Flat anvil ø 60mm
- 4 adjustable feet
- Level gauge
- Integrated hardness calculator on display
- Vickers test plate
- Spare halogen lamp
- Installation & users manual
- CV Instruments certificate

Optional accessories

- Precision vice
- XY-stage with micrometers
- Certified indentors
- Certified test blocks
- See pages indentors and test blocks

Optional system

- CV-CCD system for (semi-) and automatic traverses, pattern testing through pc support and motorised XY stage

VICKERS HARDNESS TESTER CV-405/410/430/450DAT™

With digital measurement microscope, large LCD display featuring statistics, limits checking and scale conversions

- Digital Vickers hardness tester
- Large LCD screen, menu operated
- Conversion to other hardness scales: Rockwell
- Standard conforms to EN-ISO 6507
- Integrated high-speed thermal printer and RS232 data output
- Four models with different weight ranges available
- Two way optical path
- Superior Optical system and illumination
- CV-CCD Video measurement system optional

Typical applications

- Cemented carbide, ceramics, steels, nonferrous metals
- Thin plates, metallic foils, plating, miniature objects
- Material strength, effect of heat treatment, depth of carburized or decarburized layer and flame hardened layer, effect of hardening, hardness resulting from welding or deposition
- Routine testing of precision components
- Research and development



Technical specifications

Vickers scales	CV-405DAT: HV0.3, HV0.5, HV1, HV2, HV3, HV5 CV-410DAT: HV0.5, HV1, HV2, HV3, HV5, HV10 CV-430DAT: HV1, HV2.5, HV5, HV10, HV20, HV30 CV-450DAT: HV1, HV5, HV10, HV20, HV30, HV50
Display conversion to	Rockwell
Test force selection	Dial
Accuracy	Conforms to EN-ISO 6507
Test load	CV-405DAT: 0.3, 0.5, 1, 2, 3, 5 CV-410DAT: 0.5, 1, 2, 3, 5, 10 CV-430DAT: 1, 2.5, 5, 10, 20, 30 CV-450DAT: 1, 5, 10, 20, 30, 50
Load control	Automatic (loading/dwell/unloading)
Load duration	5 to 60 sec (5 sec increments)
Objectives	10x, 20x (CV-405/CV-410DAT), 5x, 10x (CV-430/450DAT)
Eyepiece magnification	15x with digital encoder
Total magnification	150x, 300x (CV-405/CV-410DAT), 75x, 150x (CV-430/450DAT)
Measuring range	HV5 - HV3000
Maximum specimen height	160mm
Maximum specimen depth	135mm from the centre line
Display	Menu operated keypad with large LCD-screen
Hardness value	5-digit
Diagonal length	4-digit (D1, D2)
Load duration	Dwell time (sec)
Conversion	Rockwell
Statistics	No., average, S. dev., R
Optical path	2-way switchable : eyepiece/camera
Power supply	220V, 50Hz
Dimensions	220mm x 540mm x 650mm
Weight	38kg

Standard delivery

- Main unit
- Diamond indenter Vickers
- Objectives 10x, 20x or 5x, 10x
- Digital eyepiece 15x
- Flat anvil ø 60mm
- Built-in printer
- RS232 data output
- 4 adjustable feet
- Level gauge
- Vickers test plate
- Spare halogen lamp
- Fuse
- Installation & users manual
- CV Instruments certificate

Optional accessories

- Precision vice
- XY-stage with micrometers
- Certified indentors
- Certified test blocks
- See pages indentors and test blocks

Optional system

- CV-CCD system for (semi-) and automatic traverses, pattern testing through pc support and motorised XY stage

UNIVERSAL HARDNESS TESTER CV-700™

Analogue, universal hardness tester for reliable Rockwell, Brinell and Vickers testing

- Dead-weight universal hardness tester with solid design
- Rockwell, Brinell and Vickers testing procedures combined
- Moving table between indenter and measuring microscope
- Magnification by objective lenses 37.5x and 70x
- Conforms to DIN-EN-ISO 6506, 6507, 6508 and ASTM
- Simple test cycle by operation lever
- Wide test load range up to 187.5kgf
- Elevating spindle with precision guide bush, high precision bearings to eliminate back-lash from the system



Technical specifications

Hardness parameters	Rockwell, Brinell, Vickers	
Optics	Eyepiece magnification 15x	
Objectives	Interchangeable 37.5x and 70x magnification	
Standards	Conforms to DIN-EN-ISO 6506, 6507, 6508 and ASTM	
Test loads	6 Test Loads Selectable	
Test load type	Dead weights, load step adjustable	
Test cycle	Operation lever system	
Test loads	Rockwell	60 - 100 - 150kg
	Brinell	31.25 - 62.5 - 187.5kg
	Vickers	30 - 100kg
Indentor types optional	Rockwell	Diamond cone 120°, Balls 1/16"
	Brinell	Balls 2.5 - 5mm
	Vickers	Diamond cone 136°
Load duration	Conforms to standards	
Data output	Non	
Specimen accommodation	Maximum test height 180mm, maximum depth 200mm (from the centre)	
Specimen access	External surfaces, Cylindrical surfaces down to 3mm diameter	
Power supply	220V / 50Hz	
Machine dimensions	Width 560mm, depth 260mm, height 760mm	
Machine net weight	90kg	

Standard delivery

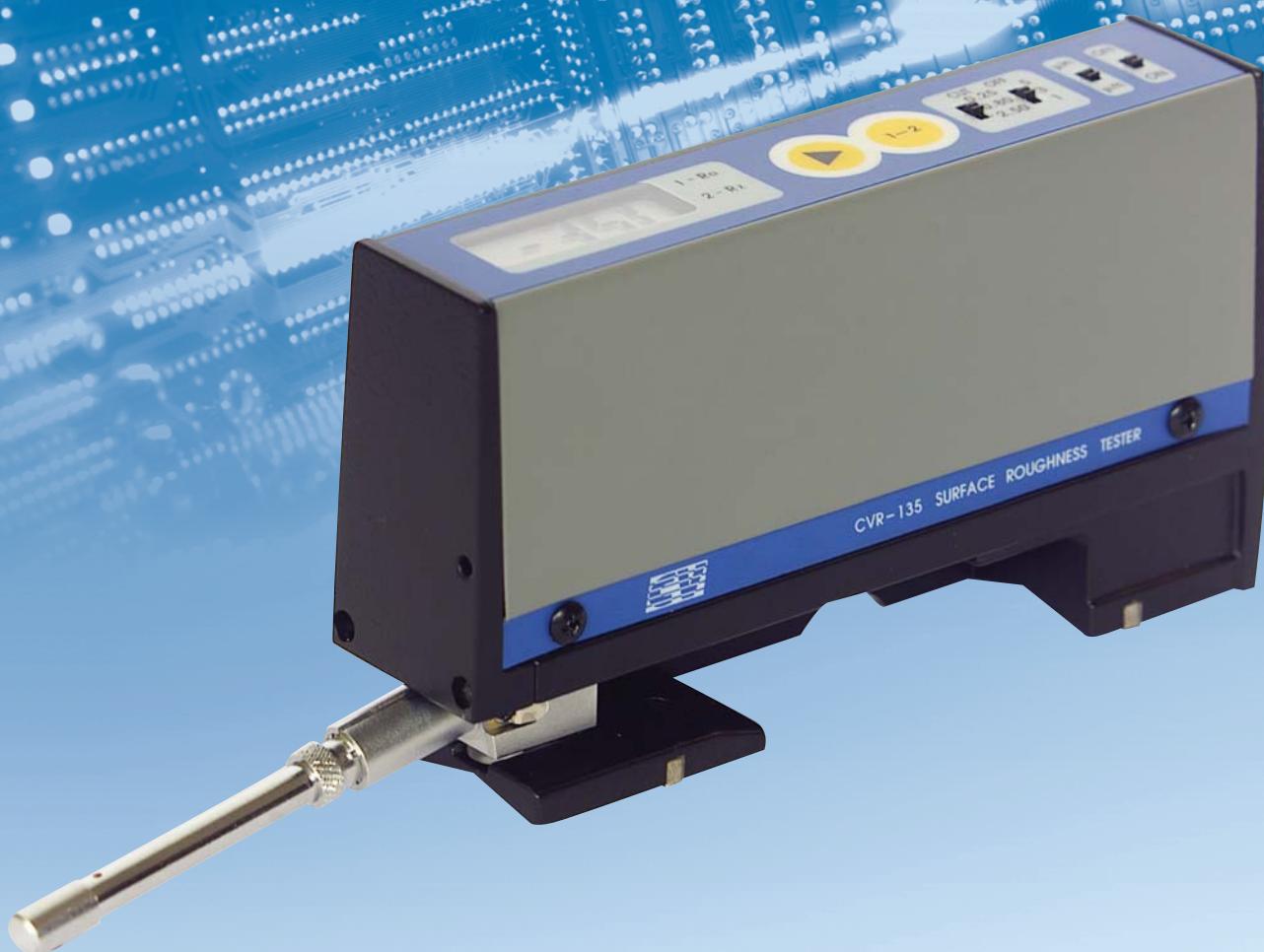
- Main unit
- 37.5x and 70x objective
- Test table
- Test platform ø 60mm
- V-anvil ø 40mm and ø 60mm
- Flat anvil ø 60mm
- Hardness test block ±450HV
- Hardness test block ±200HB
- Hardness test block ±60HRC
- Hardness test block ±30HRC
- Hardness test block ±85HRB
- Fuse 7A (2 pcs)
- Spare light bulb 6V/15W (2 pcs)
- External lamp for Brinell measurements
- Power cable
- CV Instruments certificate
- Installation and user manual

Optional accessories

- Certified indentors



Instruments



HARDNESS TESTERS - DUROMETERS - **SURFACE ROUGHNESS TESTERS**
CONTOUR MEASUREMENT - COATING THICKNESS GAUGES
ULTRASONIC THICKNESS GAUGES - WALL THICKNESS GAUGES
VIBRATION METERS - MICROSCOPES - PROFILE PROJECTORS

visit www.cvinstruments.com

BRINELL HARDNESS TESTER CV-3000LDB™

Ready-to-test digital Brinell tester with closed loop controlled load application

- Sturdy, regular 30 kN (3000kg) Brinell tester
- Rugged construction to withstand the harshest environments
- Accurate reliable and durable tester at a very affordable price
- High rigidity and closed loop load technology to ensure accurate and safe load application
- External microscope with analogue scale for indentation measurement
- Easy to use human interface to set up and operate the tester
- Brinell video microscope system optional



Technical specifications

Brinell scales	HBW 10/3000, HBW 10/1500, HBW 10/1000, HBW 10/500, HBW 10/250, HBW 10/125, HBW 10/100, HBW 5/750, HBW 5/250, HBW 5/62.5, HBW 2.5/187.5
Hardness resolution	0.1 unit if HB < 100 else 1.0 unit
Test loads	62.5, 100, 187.5, 250, 500, 750, 1000, 1500, 3000kgf
LCD display indication	Test force selected, test force actual, dwell Time
Test force application	Closed loop controlled load motor
Load duration	Adjustable application and dwell time 5-60 sec (5 sec step)
Accuracy	Conforms to EN-ISO 6506
Specimen accommodation	Vertical space 220mm Horizontal space (from centre-line) 135mm
Specimen access	External surfaces roughly ground, Ra <21.6µm
Power supply	220V AC, 50 Hz
Measuring microscope	Magnification 20X, resolution 5µm
Machine dimensions	Width 236mm, depth 550mm, height 753mm
Machine weight	Approx. 123kg

*Also available with Brinell scanning system CV-HB100

See following page!

Standard delivery

- CV-3000LDB main unit
- Measuring microscope 20x
- Ball indentors
 - ø 2.5mm, ø 5mm and ø 10mm
 - V-anvil
 - Large flat anvil
 - Small flat anvil
 - Test table ø 80mm
 - Fuse 2A (3 pcs)
 - Test block 150-250 HBW 10/3000
 - Test block 75-125 HBW 10/1000
 - Test block 150-250 HBW 2.5/187.5
 - CV Instruments certificate
 - Installation and user manual

Optional accessories

- Spare balls for each indentor
- Brinell video microscope system (see following page)

BRINELL SCANNING SYSTEM CV-HB100

Portable Brinell video scanning system



**Unique
CV Instruments system**

- High end portable video scanning system to automatically measure and determine the Brinell hardness value
- Excellent solution for quick and easy measurement of Brinell hardness values with ball diameters 1, 2, 2.5, 5 and 10mm and applied loads of 1 to 3000kg
- Including magnetic base for accurate and precise measuring
- Easy to use: Position the scanning system on the indentation made in a flat or curved surface, take an image of the indentation and send the image to pc or laptop to determine the relative hardness and diameter of the indentation. Accuracy of the measured diameter is up to 0.001µm
- Possibility to set tolerance value Yes/No
- Possibility to show the last 5 hardness measurements taken
- Automatic storage of images and files
- Storage of operator id, date/hour, hardness parameters, measured hardness values, location of stored image
- Software for automatic measurement can be used for numerous other applications with different video cameras

See following page for more details!

BRINELL SCANNING SYSTEM CV-HB100

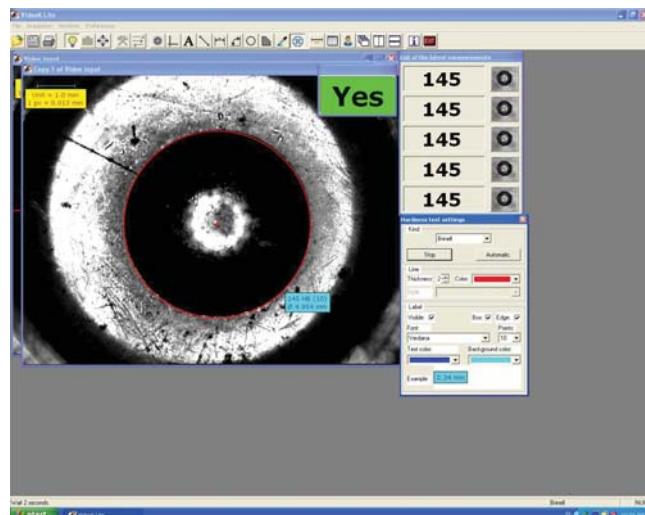
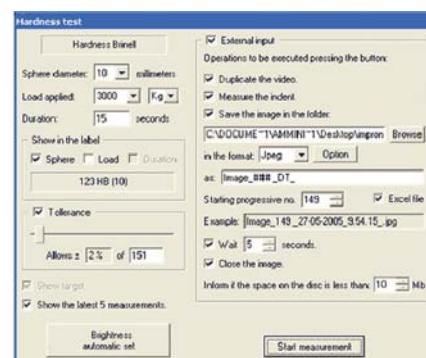
Portable Brinell video scanning system

Software features

- Measures the indentation automatically or by hand
- Saves the image of the indentation in a dedicated format and folder
- Test results can be imported into Excel
- Each measurement is filed with information about the ball diameter, applied load, load duration
- 5 last measurements can be shown on screen
- Images taken can be copied
- Automatic warning if disk space is insufficient to store image

PC requirements

- Processor: Intel Pentium or equivalent 1GHz
- Operating system: Windows 2000 or Windows XP
- Browser: Internet Explorer 5.5 (or higher)
- Memory: 512Mb RAM
- Minimum disk space: 4Mb
- Video card: 32Mb
- Firewire port



Technical specifications

Power supply	12V
Power consumption	300mA
Dimensions	ø 43mm x 270mm
Dimensions carrying case	Ext. 380mm x 265mm x150mm Int. 350mm x 250mm x140mm
Weight	650gr

Standard delivery

- Video-optical head
- Firewire interface for pc or laptop
- Software
- Power supply AC
100-240V-50/60Hz, 1.0A
- Frame grabber
- Video cable (2.3m)
- RCA-RCA video cable (1.5m)
- 12V power cable (0.85m)
- Set of USB cable,
CD with driver & dongle

Optional accessories

- Battery charger 12V, 7A
- Battery charger 12V, 1.2A
- Aluminium carrying case for
CV-HB100 + battery only
- PC or laptop

HARDNESS REFERENCE BLOCKS ALL SCALES

With official calibration certificates UKAS, DKD or ASTM

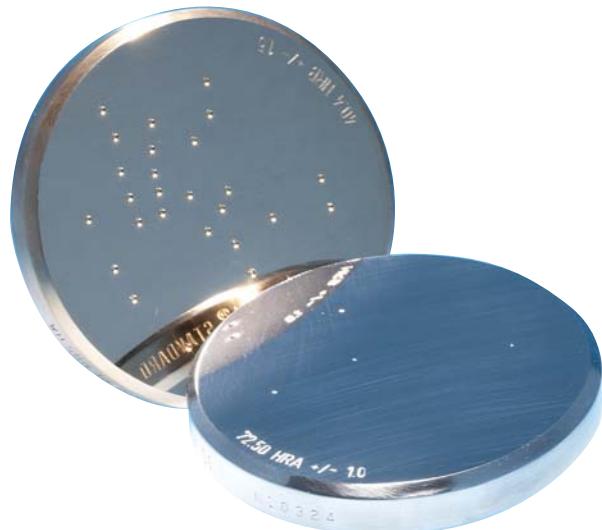
CV Instruments hardness reference blocks are used for annual verification and calibration of hardness testing machines, as well as for periodical check and sometimes for overtaking of hardness scales on a hardness testing machine. That's why hardness reference blocks are a necessary help of industrial Quality Management. Only the use of high quality, precise hardness reference blocks calibrated to applicable standards can ensure the functionality and relative reliability and accuracy of measurement of a hardness testing machine.

The hardness reference blocks used for indirect verification should conform largely to the workpiece to be tested, in terms of material characteristics and hardness range. For this reason a hardness reference block made of aluminium was developed for the lower hardness range which can not be covered by steel, using new materials technology methods.

When using hardness reference blocks it is irrelevant whether the value of the nominal hardness to be delivered corresponds exactly to the actual calibration value observed, since scale adaptation should be carried out with at least two hardness values.

A hardness reference block shall only be used as according to the standards to that method and test condition for which it was calibrated.

CV Instruments certified hardness reference blocks are available as follows and all conform to the international standards as mentioned above.



All CV Instruments hardness reference block certificates are based on following international standards:

Brinell	DIN-EN-ISO 6506-3	ASTM E 10
Vickers	DIN-EN-ISO 6507-3	ASTM E 92 / E 384
Rockwell	DIN-EN-ISO 6508-3	ASTM E 18
Knoop	ISO 4545-3	ASTM E 384
Rockwell carbide	DIN 30999	ISO 3738
Martens hardness	DIN 50359	ISO DIS 14577

CV Instruments certified hardness reference blocks are available as follows and all conform to the international standards as mentioned above.

Scale	UKAS	DKD	DKD/MPA	ASTM	CV
Regular Rockwell (all scales)	■	■	■	■	■
Superficial Rockwell (all scales)	■	■	■	■	■
Brinell (all scales)	■	■	■	□	■
Macro Vickers (all scales)	■	■	■	■	■
Micro Vickers (all scales)	■	■	■	■	■
Knoop	■	■	■	■	□
Martens hardness	■	■	■	■	□

Order your blocks based on nominal values.

Please ask for our separate product list of nominal hardness values available per hardness scale and type of certificate.

Hardness reference "soft" blocks made of aluminium

These CV Instruments reference blocks are available with DKD/MPA certificate only.

For several years there has been a need for "soft" blocks.

Using new materials technology methods, it is now possible to produce blocks made of aluminium.

They are available in lower nominal values in Rockwell, Brinell and Vickers scales. Ask for our separate sales list.

INDENTORS FOR ALL HARDNESS SCALES

With official calibration certificates UKAS, DKD or ASTM

CV Instruments offers a wide range of indentors. All certified indentors will be issued with a certificate traceable to internationally recognised standards such as UKAS, DKD or ASTM. We also offer low cost factory certified indentors and specials (see below).

Specials

CV Instruments also offer special adapters for indentors to enlarge the field of application. Small gooseneck adaptors are available in three sizes to permit regular or superficial Rockwell hardness testers to perform internal tests on rings, tubes and annular parts where the inside diameter, plus the wall thickness, is less than 50.8mm or 2 inches. These adaptors will fit any of the standard Rockwell hardness testers. The gooseneck adaptor can be clamped into the bottom of the plunger rod (in the same manner as an indentor) and is not heavy enough to affect a reading due to increasing the applied load. The minimum internal diameter which can be tested is 11.5mm or 7/16 inch.

Ask for our separate product list of indentors.



Indentor type CV Instruments

Scale	UKAS	DKD	ASTM	CV
Rockwell type 120° diamond cone	■	■	■	■
Rockwell ball indentors	■	■	■	■
Steel Rockwell ball indentor - 1/16" dia.				
Steel Rockwell ball indentor - 1/8" dia				
Steel Rockwell ball indentor - 1/4" dia.				
Steel Rockwell ball indentor - 1/2" dia.				
Carbide Rockwell ball indentor - 1/16" dia.				
Carbide Rockwell ball indentor - 1/8" dia				
Carbide Rockwell ball indentor - 1/4" dia.				
Carbide Rockwell ball indentor - 1/2" dia.				
Spare steel balls Rockwell in packs of 10	■	■	■	■
Spare carbide balls Rockwell (singles)	■	■	■	■
Brinell ball indentors	■	■	□	■
Carbide ball indentor - 1mm dia.				
Carbide ball indentor - 2mm dia.				
Carbide ball indentor - 2.5mm dia.				
Carbide ball indentor - 5mm dia.				
Carbide ball indentor - 10mm dia.				
Spare Brinell carbide balls (singles) all sizes	■	■	□	■
Vickers Pyramid 136°	■	■	■	■
Micro Vickers 136°	■	■	■	■
Micro Knoop	■	■	■	■



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HARDNESS TESTERS - DUROMETERS - SURFACE FINISH TESTERS
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VIBRATION METERS - MICROSCOPES - PROFILE PROJECTORS

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PORATABLE HARDNESS TESTER "INSTRUMATIC"™

A fully mechanical instrument of the highest precision, robust, and free from normal maintenance

The large clearly marked dials on these unique instruments cover a full range of hardness values in Vickers, Brinell, Rockwell A, B, C, and Kp/mm² covering the British, American and German specifications

The Instrument

The system is entirely mechanical employing the use of special pre-loaded springs which provide a load of about 1.5kg to the diamond. Maximum penetration of the diamond into the specimen is 0.125mm (.005").

Operation and Use

The simplicity of the tester enables it to be used in almost any direction, (preferably vertically), without affecting accuracy. It can be used 'on site' with complete success. The grips are depressed to the fullest extent by using the palms of the hands and the hardness value can be read off the appropriate scale. Repeatability is excellent and the calibration can be checked by the user against a reference test block supplied with each instrument. Each tester is supplied complete in a case with detailed operating instructions.

Diamond Indentor

The instrument does not require any regular servicing. Should the diamond indentor become damaged, a new indentor can simply be fitted using the small tool supplied with the instrument.

Bench Stand

Bench stand with vee base for round parts, available as an option.

Magnetic Holder

A magnetic holder is available for checking the hardness of large ferrous finished surfaces such as lathe beds, milling machine tables and large surfaces which cannot be easily checked by hand.



Technical specifications

Code No.		Scale	Range
POR0001	No 1	Vickers Pyramid	100 - 1000
		Brinell	100 - 500
		Rockwell C	20 - 70
POR0002	No 2	Rockwell A	40 - 85
		Rockwell B	50 - 100
		Rockwell C	20 - 70
POR0003	No 3	Vickers Pyramid	100 - 1000
		Brinell	100 - 400
		Rockwell B	50 - 99
		Rockwell C	20 - 70
POR0004	No 4	kg/mm ²	35 - 140
		Brinell	100 - 400
		Rockwell B	50 - 99
		Rockwell C	20 - 70
POR0005	No 5	Vickers Pyramid	40 - 300
		Brinell	40 - 300
POR0006	No 6	Brinell	40 - 300
		Vickers Pyramid	40 - 300
POR0007	No 7	Brinell	100 - 600
POR0008	No 8	Vickers Pyramid	20 - 106
PBS0001	Precision Bench Stand		

Standard delivery

- Main unit
- UKAS certified test block
- Case
- Adjusting keys
- CV Instruments certificate
- Manual

Optional accessories

- Bench stand
- Magnetic holder
- Spare diamond indentor